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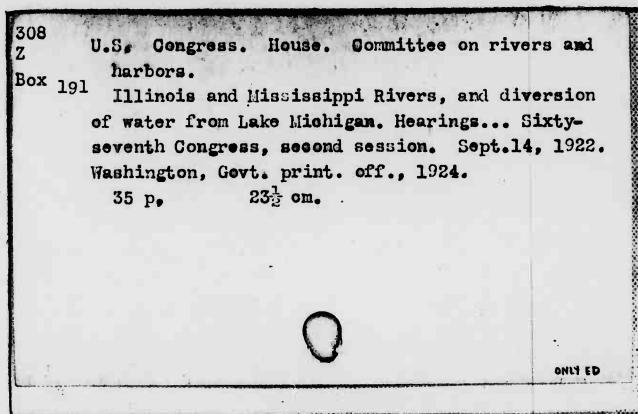
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**ILLINOIS AND MISSISSIPPI RIVERS, AND DIVERSION
OF WATER FROM LAKE MICHIGAN**

HEARINGS

ON THE SUBJECT
OF

**THE IMPROVEMENT OF THE ILLINOIS AND MISSISSIPPI
RIVERS, AND THE DIVERSION OF WATER FROM
LAKE MICHIGAN INTO THE ILLINOIS RIVER**

HELD BEFORE THE

COMMITTEE ON RIVERS AND HARBORS

HOUSE OF REPRESENTATIVES

SIXTY-SEVENTH CONGRESS
SECOND SESSION

CONSISTING OF

S. WALLACE DEMPSEY, New York, *Chairman*.

RICHARD P. FREEMAN, Connecticut.
NATHAN L. STRONG, Pennsylvania.
AMOS H. RADCLIFFE, New Jersey.
CALEB R. LAYTON, Delaware.
CLEVELAND A. NEWTON, Missouri.
ALBERT A. BLAKENEY, Maryland.
JAMES J. CONNOLLY, Pennsylvania.
OSCAR J. LARSON, Minnesota.
M. A. MICHAELSON, Illinois.
WILLIAM W. CHALMERS, Ohio.
CHARLES G. BOND, New York.
WYNNE F. CLOUSE, Tennessee.
VINCENT M. BRENNAN, Michigan.
WALTER F. LINEBERGER, California.

H. GARLAND DUPRÉ, Louisiana.
JAMES W. OVERSTREET, Georgia.
JOSEPH J. MANSFIELD, Texas.
JOHN McDUFFIE, Alabama.
JOHN J. KINDRED, New York.
TILMAN B. PARKS, Arkansas.

JOSEPH H. McGANN, *Clerk*.
ELLA F. PHALEN, *Assistant Clerk*.

SEPTEMBER 14, 1922



WASHINGTON
GOVERNMENT PRINTING OFFICE

15-8
ILLINOIS AND MISSISSIPPI RIVERS, AND DIVERSION OF
WATER FROM LAKE MICHIGAN.

COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES,
Thursday, September 14, 1922.

The committee this day met, Hon. S. Wallace Dempsey (chairman) presiding.

The CHAIRMAN. Mr. Shaw, I realize fully the importance of this meeting, and we are going to proceed with the hearing at once in view of the fact that you have your parties here and it should not be delayed. We do not want to inconvenience them.

Mr. Freeman, Mr. Radcliffe, Mr. Kindred, Mr. Mansfield, and myself have to go for a short time to attend a conference, because we have been asked by the organization of the House to report the result of the conference on the rivers and harbors bill to-morrow. We have a reporter present this morning and he will take the proceedings of this hearing and they will receive the same attention on the part of all of us as though we were all present. It is solely the fact that we have to be at this conference that prevents us all being here, and we apologize to you for going. It is only necessity which makes us go and we do not want you to feel that we minimize the importance of the matter that you are presenting. Mr. Shaw has urged it with a good deal of force and energy for a long time, and he has impressed all of us with the situation, so that we are very familiar with the matter in advance of the hearing.

We will read the proceedings of this meeting, which will be printed as soon as possible. I trust, under these circumstances, that you gentlemen will be good enough to excuse those of us who are obliged to go.

(Mr. Bond thereupon took the chair.)

Mr. BOND. This hearing is on the bill introduced by Mr. Shaw, which reads as follows:

(H. R. 12620, Sixty-seventh Congress, second session.)

A BILL For improvement of the Illinois River and that section of the Mississippi River between the mouth of the Illinois River and St. Louis, Missouri; for removal of the existing locks and dams in the Illinois River; for the control and regulation of water from Lake Michigan into the Illinois River; and for the control of floods of the Illinois River and its tributaries, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War is hereby authorized and directed to prosecute the improvement of the Illinois and Mississippi Rivers in accordance with the report submitted in Rivers and Harbors Committee Document Numbered 7, Sixty-seventh Congress, second session, and in addition thereto to remove the existing dams in the Illinois River, Illinois: Provided, That the Secretary of War is hereby authorized and directed to prescribe regulations to govern the withdrawal of water from Lake Michigan.

gan by the Sanitary District of Chicago, a municipal corporation organized and existing under the laws of the State of Illinois, or its legal successor, though the Chicago and Calumet Rivers and through artificial channels which have heretofore or may hereafter be constructed: *Provided further*, That the Secretary of War is hereby authorized to construct, at suitable points in the Chicago and Calumet Rivers, such controlling works as may be necessary to regulate the flow in accordance with the provisions of this Act: *And provided further*, That for controlling the floods of the Illinois River and its tributaries, and continuing its improvement, the Secretary of War is hereby empowered, authorized, and directed to carry on continuously, by hired labor or otherwise, the plans of the War Department heretofore or hereafter adopted, to be paid for as appropriations may from time to time be made by law, not to exceed in the aggregate \$10,000,000: *And provided further*, That not more than \$2,000,000 shall be expended therefor during any one fiscal year.

(a) That all money appropriated under authority of this section shall be expended under the direction of the Secretary of War in accordance with plans, specifications, and recommendations of the Chief of Engineers for controlling the floods and for the general improvement of the Illinois River and its tributaries, and for surveys.

(b) That no money appropriated under authority of this section shall be expended in the construction or repair of any levee unless and until assurances have been given satisfactory to the Chief of Engineers that local interests protected thereby will contribute for such construction and repair a sum which the Chief of Engineers shall determine to be just and equitable but which shall not be less than one-half of such sum as may have been allotted by the Chief of Engineers for such work: *Provided*, That such contributions shall be expended under the direction of the Chief of Engineers or in such manner as he may require or approve.

(c) That no money appropriated under authority of this act shall be expended in payment for any right of way for any levee which may be constructed in cooperation with local interests under authority of this act, but all such rights of way shall be provided free of cost to the United States: *Provided*, That no money paid or expense incurred by local interest in securing such rights of way, or in any temporary works of emergency during an impending flood, or for the maintenance of any levee line, shall be computed as a part of the contribution of said local interest toward the construction or repair of any levee within the meaning of paragraph (b) of this section.

Upon the completion of any levee constructed for flood control under authority of this act, said levee shall be turned over to the levee district protected thereby for maintenance thereafter; but for all other purposes the United States shall retain such control over the same as it may have the right to exercise upon such completion: *Provided further*, That in studying and executing plans for the improvement of the Illinois River, Illinois, early and special consideration be given to the question of protecting life and property in the city of Beardstown, Illinois, on the Illinois River from overflow.

Mr. BOND. Mr. Shaw, will you make your opening statement?

STATEMENT OF HON. GUY L. SHAW, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS.

Mr. SHAW. Mr. Chairman and gentlemen of the committee, from 1809 to 1818 Illinois had the Territorial form of government, it being admitted to the Union in the latter part of the year 1818. It may be interesting to you to know that the first governor of the State, Hon. Shadrack Bond, was the great-uncle of my esteemed colleague, Mr. Bond, a member of this committee, from the eighth district of New York.

Shadrack Bond was the first to espouse improved waterway transportation on the Illinois River, and in his inaugural address in 1818, in making a plea for the construction of what is now known as the Illinois-Michigan Canal, he said:

Possessed of a country not surpassed for the fertility of its soil, intersected and almost surrounded by lakes and rivers convenient for navigation, it is much to be regretted that the means requisite for the commencement of any internal improvement of consequence are not in our possession. The money which has been appropriated and which is to be disbursed under the direction of Congress in making roads leading to the State would go far to improve the navigation of our watercourses; in a few years, it is believed, that fund will accumulate to an amount sufficient to defray the expenses of cutting a canal to connect the water of Lake Michigan and the Illinois River. The advantages resulting from such a work are too obvious to require comment. By means thereof, together with the canal connecting the water of Lake Erie and the Hudson River, which is already in a state of great forwardness, a water communication from our very doors will be opened to the Atlantic by way of the Lakes. I therefore recommend an early application to the Congress of the United States to procure such a change in the disposition of that fund as to make it applicable to the furtherance of so desirable a purpose.

It therefore seems that Congressman Bond has inherited his belief that our internal and natural waterways should be improved. It is proper that he should be a member of the Rivers and Harbors Committee.

No active steps seem to have been taken toward the construction of the proposed canal until in February of 1823, at which time the general assembly appointed a board of commissioners "to consider and devise and adopt such measures as may be requisite to effect communication by canals and locks between the navigable waters to the Illinois River and Lake Michigan."

In 1833, 10 years later, an act was passed by the general assembly abolishing the previous acts providing for the construction of the Illinois-Michigan Canal. Nothing definite seems to have been accomplished until 1836, when estimates were made for a canal 60 feet wide at the bottom and 6 feet deep, costing \$8,654,000. Work was commenced in June of that year and continued until March, 1841, when it was discontinued for want of available funds.

In 1845 an additional \$1,800,000 was raised by the sale of lands owned by the State. In consequence of a change of plans the entire cost fell within the estimates which had been made, so that at the opening of the canal in April, 1848, the entire expenditure had been \$6,170,226.

When completed the eastern terminus joined the south branch of the Chicago River, 5 miles from the mouth of the main stream. A direct line is pursued to the valley of the Des Plaines, the main eastern branch of the Illinois River, a distance of about 8 miles. The canal then traverses the valley to the mouth of the Kankakee River, a distance of 43 miles, passing through the towns of Lockport and Joliet and receiving water from four feeders—the Calumet, Des Plaines, Du Page, and Kankakee Rivers. The canal now follows the valley of the Illinois River to its terminus—La Salle—passing through the towns of Morris and Ottawa, receiving water from Fox River, the whole length being 96 miles.

Even before its completion it was ascertained that it would be inadequate on account of the low-water stages in the Illinois River. In 1852 the project adopted by Congress provided for the improvement of the navigation of the Illinois River by dredging and the construction of six locks and dams.

By an act of February 28, 1867, the State began the work of improving the Illinois River channel by constructing a lock and

dam at Henry and another at Copperas Creek. These dams established a depth of 7 feet, except in the lowest places.

The lock and dam at Henry were completed in 1872 at a cost to the State of \$400,000.

In 1877 the State of Illinois opened the dam at Copperas Creek which cost \$347,747. The United States Government put in the foundation of the lock at Copperas Creek and spent \$95,000 for dredging, and another \$50,000 for general improvement of the channel. This work was all done in the interest of navigation and looking to a Lakes-to-Gulf waterway.

In 1889 the Federal Government put in the La Grange Lock and Dam, and in 1893 the Kampsville Dam was completed. The Government constructed these dams and locks for the purpose of improving the transportation on the Illinois River with a view to facilitating shipments of grain and other produce of the Middle West.

In the meantime the sanitary problem of Chicago had become serious, and in 1865 permission was asked to lower the summit of the canal so as to insure sufficient flow of water from Lake Michigan into the Des Plaines River to carry the sewage from Chicago.

In 1865 the plan was authorized and was completed in 1871. With the rapid growth of Chicago, this soon became inadequate and the Chicago Sanitary District was created by act of May 28, 1889, and a new channel was begun in 1892 and finished in 1900.

The main channel of the sanitary district includes the Chicago River and covers about 39 miles across the Chicago divide to the Des Plaines River at Dam No. 1, Joliet, with a level of 42.4 feet below standard low water at Lake Michigan.

The Federal act to create the sanitary district in 1889 included the removal of the State dams at Henry and Copperas Creek. This the State objected to by injunction, as the removal of these dams would destroy navigation and an open-river policy was insisted upon by the State. Finally, in an appeal to the Supreme Court in 1900, it was decided that the dams could not be removed and maintain an equal depth of water in the river.

The sanitary district lowered the dam 2 feet at Kampsville by Federal permit authorized by joint resolution of Congress, April 21, 1904, but nothing was done at La Grange, where the levels of the second reach were controlled.

In 1912 it was found that the State dams at Henry and Copperas Creek had not been removed under legislation of 1889, therefore action regarding the removal of the Federal dams at Kampsville and La Grange was deferred. It was stated that the Federal dams would form no part of the deep waterway project and must be removed as a condition of further action on the part of the Government.

One million dollars was appropriated by Congress in 1910 for deep waterway subject to an understanding with Illinois that the State dams be removed. The Lakes to the Gulf Deep Waterway Association in 1912 sought to divert this appropriation to the dredging of the lower Illinois in connection with the removal of the dams. The result of hearings on the subject was that the State must remove the dams before the Federal Government would remove its dams or apply any of the \$1,000,000 appropriation.

Though the general assembly in 1907 authorized the expenditure of \$20,000,000 for waterway and water power in the upper Illinois Valley, the legislature was not disposed to use this money until an authorized flow of 10,000 second-feet is authorized.

The preliminary flow of water through the main channel of the Chicago Sanitary District Canal from Lake Michigan to the Illinois was based on the capacity of the Chicago River as determined by experts and was for 4,167 second-feet. The flow was finally established January 17, 1900.

The Association of Drainage and Levee Districts of Illinois at the Springfield meeting of its executive committee on March 8, 1912, asked the Secretary of War to refuse permission for the Chicago Sanitary District to increase the flow from Lake Michigan until the dams were removed.

The Chicago Sanitary District has never kept faith. They have from the very beginning violated the Federal permit and it is conceded that as much as 8,500 second-feet is being diverted into the Illinois River and there seems to be good evidence that as much as 16,000 second-feet is at times being diverted.

The Chicago Sanitary District has for many years held out to the people of the Illinois River Valley the lure of a Lakes-to-Gulf deep waterway, but the futility of such a plan has been demonstrated by engineers time and time again, who declare that a barge canal only can be developed.

Some recommend the removal of both the locks and dams, while others say the locks do not interfere with navigation and may just as well remain as they are. By the removal of all the dams and some dredging, a depth of 8 feet can be maintained, which is all that is needed for a barge canal, and we are now getting more than enough water for that.

The sanitary district talks much about the necessity of diluting its sewage, which is the cloak used to cover the commercial motive prompting them. One of the principal reasons why the sanitary district desires to divert this large quantity of water is that it now is furnishing power, generated by means of the flow of the water through the dam at Lockport. I am informed that it has seven turbines at Lockport and it requires approximately a flow of 100,000 cubic feet per minute to operate each of these seven turbines. This means if they were all in operation at the same time, it would require the diversion through the dam of 700,000 cubic feet per minute. Their appliances are so arranged that if they do not get this quantity, they can shut off part of the turbines. The strong plea that is being made by the sanitary district is that it is absolutely necessary to properly dilute the sewage now going into the channels to be able to use 10,000 cubic feet water from Lake Michigan per second; that if they are not permitted to do this, then the responsibility for the health of the great population of Chicago will be upon some one else. It is claimed by some that the increased flowage over the amount the sanitary district is authorized to divert will not lessen the sewage nuisance in the least, because of the slow flow of the Illinois River.

There has been much discussion over the depth of this long-templated waterway. In 1888 an act of Congress advised a channel of 14 feet. The waterway bill of 1895 provided for a channel of not less than 14 feet for the waterway from Lake Michigan by way of the

Des Plaines and Illinois Rivers to the Mississippi, with the exception of a 24-foot depth at Joliet. The 14-foot depth was to be developed to 24 feet progressively by dredging.

The Barlow Board was authorized by act of March 3, 1899, and they were instructed to determine the feasibility of a 14-foot channel from Lockport to the Mississippi. The Ernest Board of June 13, 1920, recommended a channel 14 feet with provision for a deeper way in the "not remote future." In March, 1907, a special 14-foot board was constituted under act of Congress. They adopted the estimates and plans of the Ernest Board.

A special board of engineers was constituted under act of Congress of June 25, 1910. This board was unable to make any definite headway because the State of Illinois had not provided any agency to confer with them.

The Lakes-to-the-Gulf Deep Waterway Association was organized in 1906. They met in convention and decided upon "14 feet through the valley" as the initial project with lock sills and other permanent structures adapted to a depth of not less than 24 feet.

In 1911 this association reaffirmed the program adopted in 1910 at its fifth annual convention.

The whole matter sifts down in the last analysis to this: That in order to maintain an 8-foot channel in the Illinois waterway, it seems certain that the State and Federal dams must be removed or else provision must be made for the expenditure of vast sums of money in alteration and restoration of these dams. The crest of Kampsville Dam would have to be restored; lock keepers' quarters would have to be built and maintained at the State locks and dams; the gates at the State locks must be rebuilt and many other items would have to be cared for if the dams and locks are retained.

The removal of the State dams would not interfere at any time or place with navigation but the Federal dams could not be removed until the channel now being built by the State is completed as their removal would interfere with navigation at low-water stage and also interfere with the work being done.

The sane and practical thing seems to be to remove all dams in connection with the accomplishment of an 8-foot channel if the flow from Lake Michigan is to be 4,167 second-feet or more.

The Secretary of War has persistently refused to permit a flow from Lake Michigan greater than 4,167 second-feet without express sanction of Congress.

If the 10,000 second-feet asked for by the sanitary district is allowed it will lower the level of Lake Michigan and Lake Huron 6 inches; Lake Erie, 5.5 inches; and Lake Ontario, 5.7 inches.

You must realize that this withdrawal would mean about 900,000,000 cubic feet of water every day from Lake Michigan.

As one example of what the lowering of the lake level would mean, let me recite a statement in the report of the Lake Carriers' Association regarding this project. This report states that the lighter loading of their freighters made necessary by the lowered level would cause a loss to them of nearly \$3,000,000 annually. Carriers have increased in size in demand of trade and the Government and States have spent millions of dollars enlarging channels and dredging harbors and perfecting terminals and any project which

interferes with this attempt to meet the demands of cheaper transportation retards and abridges commerce.

We of the Illinois Valley do not want any more sewage sent down the river, no matter how much it is diluted. We have lost our fishing industry as a consequence of the pollution of the stream. The fauna of the river has changed under the effect of the pollution so that there is not sufficient food for fish even if they could otherwise live in the foul waters. Thousands of acres of tillable land absolutely ruined on account of the high water after the flow from Lake Michigan was turned in; stretch after stretch of timber has been destroyed by the wave-wash or have been strengthened at great cost; pasture land where thousands of heads of cattle had been pastured can not pasture 20 head now; the pollution with its foul presence and odor has made boating and bathing impossible; the owners of land along the river have received almost nothing from the sanitary district for the damage done them.

The pollution of the waters of the Illinois River by the Sanitary District of Chicago has killed all plant and animal life in the river. Before the pollution of this river it ranked second only to the Columbia River in the production of fish. In 1908 the commercial catch alone had grown to 23,896,000 pounds. At present prices this industry would be worth to the people of the valley at least \$1,000,000 per year.

I must not neglect to tell you also of the mussel resources and pearl industries of the Illinois River which have been among the most important in the country. It is interesting to note that probably the first American fresh-water shells gathered for the purpose of button manufacture were taken from the Illinois River in 1872, two tons being gathered at Peoria and exported to Europe. In 1876 a shipment of shells was sent from Beardstown to New York. The Illinois River reached the maximum of its shell production in 1909. According to the United States census of 1908 the Illinois River furnished one-fifth of the total amount of the yield of shells and pearls in the Mississippi Basin. At one time there were 2,600 boats in the mussel fishery between Peru and Grafton. At Bath, Ill., the mussel beds were more productive than any other bed in the entire river.

Some splendid pearls have been found in the Illinois River, ranging in price from a few dollars to \$2,700. Peoria Lake, Beardstown, Havana, Bath, Pearl, Meredosia, and Hardin were all pearl centers, buyers coming from the East and even from Europe to purchase from the great supply afforded by this river.

For the most part, however, the people of the Illinois Valley are engaged in agricultural pursuits.

The reclamation of overflow lands made habitable and productive thousands of acres of otherwise uninhabitable and unproductive lands. Some little work was done before 1900, but it was after that that the pumping stations were established, and it was this that gave the reclaimed lands a substantial and secure existence. The districts under levee in 1913 comprised about 226,635 acres. The average cost of reclamation was about \$50 an acre, so that the development of the 226,635-acre district represents an investment of about eleven million above the cost of the land.

While there were some disadvantages to the valley through this leveeing in the narrowing of the river bed, and thus increasing the flood height at other places and doing away with the shallow water, breeding ground for fish, the advantages far outweigh the disadvantages in the productivity of the reclaimed land.

I have recounted the history of the deep waterway from Lake to Gulf to show you how the Illinois Valley people have been filled with high hopes or despair as to the ultimate result of this project. I well remember some people going through the country with big maps and charts and holding forth most eloquently on what they proposed to do and what it would mean to them. But nothing has ever come of any of the big talk that has really been of advantage to the people talked to. It has been a political dodge or in the interest of the Chicago Sanitary District Canal from beginning to end. As an American citizen I believe in the rights of each and every other American citizen and I mean, while I am representing the twentieth district of Illinois, through which 230 miles of this river flow, to do all I can through persistent untiring effort to change the conditions of those who, like myself, are really and seriously affected by the present deplorable state of sanitation on the Illinois River.

It has been demonstrated to us by the flood in the spring of 1922 that intense suffering can be caused by the relentless and swollen waters of the Illinois. We can not sit idly by and do nothing to prevent such an overwhelming disaster in the future.

Though we could not but be proud of the spirit, the courage, and the resourcefulness of the inhabitants of the flooded districts at the crucial moment, yet we know that much suffering, much financial loss entailing expenditures for years to come must follow such a devastating flood. Fields that would otherwise have produced crops worth thousands of dollars are now idle. In innumerable ways hardships will fall upon the people, and I want nothing for them so much as to give them proof that all is being done by Congress that can be done to bring about renewed conditions and, consequently, hope of normal conditions and resumption of the rights which are most surely ours.

The people of the State of Illinois were deceived when they permitted the construction of the sanitary district canal for the purpose of taking care of the sewage of the city of Chicago. It was at that time an inadequate method of handling the sewage, but the thing was permitted, the flow was established, and the Sanitary District of Chicago agreed to pay damages which might accrue from any flood from Lake Michigan going into the Illinois River Valley. This they have never done. Perhaps they may have made some settlements with some people, but there has been but a limited amount of that. They have overflowed the land, they have killed thousands of acres of timber, and they have ruined many acres of land from an agricultural standpoint. They have almost destroyed some of the villages and cities along the river, and the supply of fish and animal life in the river has been destroyed; the conditions have become intolerable.

The Government has some dams in the river, such as those at La Grange and Copperas Creek. Part of them are Federal dams and part of them are State dams. We feel that those obstructions should be removed and steps should be taken toward controlling the floods

of the river. Of course, while the Chicago Sanitary District is in existence we have to reckon with it. We do not say they should not flow any water down in our river under present conditions, but we want the flow cut down to the minimum. We want them to play fair with us, which they will not do, and which they have never shown any disposition to do. The only recourse we have is to the Federal Government, and we are going to try to picture this matter to you so you will understand the situation in all details, and then we are in hopes that from that time on the issue will be so clarified that we can take definite steps toward correcting this evil in that district.

Now, Mr. Chairman, I would like to introduce to the committee Mr. Robert H. Garm, president of the First State Bank at Beardstown, Ill. He is a banker with a wide range of experience. He is the president of a bank which has, perhaps, financed the greatest number of drainage districts that have been financed by any one bank along that river, and he is thoroughly familiar with the conditions, particularly with reference to the city of Beardstown. We had a flood there last spring, and I suppose there is not a town in the United States which has suffered more from a flood than Beardstown suffered from that flood last April.

STATEMENT OF MR. ROBERT H. GARM, PRESIDENT FIRST STATE BANK, BEARDSTOWN, ILL.

Mr. GARM. Mr. Chairman and gentlemen of the committee, I live at Beardstown, Ill., and have lived there all my life, some sixty-odd years. We have there a city of about 8,000 inhabitants, situated on the Illinois River between St. Louis and Peoria, and it is the chief town and the largest town on the river between those two places.

Mr. BOND. What is the distance between those two places?

Mr. GARM. The distance between St. Louis and Peoria is something like 200 miles. Beardstown happens to be the only city that is situated on the river's banks that is not situated on a bluff, so it is subject to overflow. That, however, we did not discover until 1922. We always thought we were entirely safe.

I have been and am a landowner as well as a banker and a building and loan association secretary. I will say that 90 per cent of the people of our city own their own homes. We have always encouraged those things.

Until the last 10 or 15 years the agricultural territory tributary to our town did not amount to much because it consisted largely of swamp land and was covered by water, and so on, especially after they put in the locks and dams which are about 12 miles below our city. I own some land about 4 miles from La Grange Lock and Dam.

We believe in our community that the things contributing to our unusual flood conditions in the last year, which entirely inundated our city, were contributed by the locks and dams below us and also by the Sanitary District of Chicago, by the excessive rains, and by the districts built along the reclaimed lands through that valley. We believe those things were the main contributing factors to this flood condition. We know that the dam itself, which is below us, has raised the bed of our river from 3 to 6 feet for 12 miles above us. The silt that goes down gradually raised the bed of the river, and,

of course, that made the river that much higher, and floods us that much quicker.

Until this year, 1922, we never had a flood that inundated our city. In April of this year we had from $3\frac{1}{2}$ to 7 feet of water all over Beardstown, a city of 8,000 inhabitants. We thought we were ruined, but owing to the kind work and help of the health department of the State of Illinois, we came out a good deal better than we thought we would, from the standpoint of health. We got cleaned up, with their assistance, and while many of our basements are not dry yet, the danger of an epidemic has gone by.

Our loss, of course, was very great. I happen to be chairman of a committee that was appointed to prevent a recurrence of those conditions, and that is what I want to talk to you about more particularly than our loss, or than anything else.

As I said, we have about 8,000 inhabitants. Our property values there or our assessed valuation is about three and a half million dollars. Our total, real valuation in real estate is about \$6,000,000, and our personal property amounts, perhaps, to about \$4,000,000, making a total of about \$10,000,000 worth of property in the city. I realize this, as one of the oldest inhabitants whose interests are all in Beardstown, that we have to protect ourselves against a recurrence of this flood condition, because it is bound to come again. It is natural that water goes downstream, and the turning in of the water of the Chicago Drainage District, with the locks and dams that retard the free movement of that water and the building of drainage districts along the river, have created a condition which makes it necessary for our city to levee the river banks in order to protect the town. I realize that is what has to be done.

Of course, we are interested in drainage districts. I always have encouraged the development of them. I have been there from the inception of them and have encouraged them, because I realize that the lands reclaimed in the Illinois River Valley are the most fertile and productive of any lands in this country. I realize that is a strong statement to make, but I believe that they contribute more to the Corn Belt of this country—that is, the lands in the Illinois River Valley—than the lands in any other like amount of territory anywhere. I myself go down every week or two to look at a corn-field of four or five hundred acres in one of these levee districts, and that corn has not a mark in it nor a blemish. The production is wonderful, because that is all virgin land. This is going to give the fellows on high lands a chance to rebuild their lands, which they have to do, and not reduce production.

I am member of the Illinois Bankers' Association and of the American Bankers' Association. I have recommended that the Illinois Bankers' Association take an interest in this matter in conserving the soils of the State, and have been more or less active in encouraging the rehabilitation and rebuilding of the soil conditions in the State of Illinois, which I think is a good thing. I merely mention that to show you that these lands, if they are reclaimed in these river bottoms, will furnish the bulk of the crops for a few years until they get these things in the condition in which they ought to be.

I think one of the greatest authorities on this proposition was Mr. James J. Hill, the great railroad builder of the Northwest. In his

lifetime he was one of the greatest authorities in matters of that kind. I remember he pointed out those things to us in Illinois—rebuilding and conserving and fertilizing our soil—15 years ago, and, while they did not soak in at that time, yet they have now, and we are profiting by them.

Mr. SHAW. I would like to ask you if the Federal land bank has a farm loan association in Beardstown.

Mr. GARM. Yes.

Mr. SHAW. They make a considerable number of loans?

Mr. GARM. Yes; and it has been very beneficial, Mr. Shaw, to the farmers there, the men who are struggling to reclaim their lands, in putting them on a basis where they will be able to keep up the payment of their drainage taxes, and so on.

Mr. SHAW. Approximately how much have they loaned in the community around Beardstown?

Mr. GARM. I suppose the amount is as much as a half a million dollars.

Mr. CHALMERS. I would like to suggest that, inasmuch as we have limited time, if you have a plan, tell us briefly what it is.

Mr. GARM. Yes, sir; I will do that. In the latter part of this bill which is under consideration, there is a reference to Beardstown. We want to work with the drainage districts on our river and work harmoniously for some plan whereby we can prevent a recurrence of the flood conditions.

Mr. CHALMERS. How can that be done?

Mr. GARM. That is an engineering proposition. I think it can be done, but I think it can only be done by leveeing, and we will have to levee Beardstown, in my judgment.

Mr. CLOUSE. How long has it been since the Government dams were constructed?

Mr. GARM. The La Grange Dam was closed in 1888, and the other a few years later.

Mr. CLOUSE. How do you account for the fact that all this time has elapsed before you were bothered with these flood conditions?

Mr. GARM. We have been bothered every year as to the flooding of the lands until they were leveed, but as to the city of Beardstown itself, it has never been higher to an extent above 19 to 21 feet above low-water mark before this year at our highest stage of the water. Before this year it has been as much as 20 feet above low-water mark, and we could get by with that, but it was over 25 feet above low-water mark this year.

I think the only solution of the Illinois River problem is the removal of all interferences of any kind in the bed of the river by dredging.

Mr. CLOUSE. Just one more question. Of course, these dams were constructed, I suppose, primarily for navigation purposes?

Mr. GARM. Yes, sir.

Mr. CLOUSE. Is the river being utilized for that purpose at this time?

Mr. GARM. To an extent; yes.

Mr. CLOUSE. If the dams were taken out, could it be utilized for navigation?

Mr. GARM. For barging.

Mr. CHALMERS. What is the mean depth of that river there?

Mr. GARM. It has a 7 or 8 foot channel at low-water mark.

Mr. BOND. If you took the dams out, what would it be?

Mr. GOODELL. There would have to be some dredging.

Mr. BOND. Your thought is, if you removed the dams you would not have this flooding, and it would cost, apparently, little to have a 7-foot channel and do away with the dams; is that correct?

Mr. GOODELL. Yes, sir.

Mr. BOND. Has there been any estimate as to what that cost would be?

Mr. GOODELL. I think there has been.

Mr. SHAW. The War Department has estimated about \$600,000, I believe.

Mr. GARM. We in the Illinois River Valley feel that the Government has interested itself, to a certain extent, in the Mississippi River. We can not understand why it does not for the Illinois River, as we think we ought to have the same consideration that they have anywhere else, especially when you consider the crop statistics of Illinois. That is the way we feel about it. There is another thing that I, as a banker, want to say. The minute the Government would do that it would stabilize the securities of the farmers against the drainage districts, and that would be a wonderful help. We would be able to take them at a lower rate of interest, because when it would be known, as is the case, for instance, when the Government takes a hand in the matter on the Mississippi River, where, under certain conditions, if the levees are built according to specifications, I understand they pay half the cost, that would enable the rate of interest to be reduced. If that were done in the case of the city of Beardstown it would be a protection, and we would be able to prevent a recurrence of such a flood as we had last spring.

Mr. SHAW. Going back to the position of the Federal land bank, what is their position with reference to making loans on the land since the flood?

Mr. GARM. Since the flood of 1922 they have curtailed those loans. But none of those securities has been defaulted. I own some securities of the district where they have been flooded by the river, where they were flooded in April, 1922, and they have not been defaulted. But the Federal land bank, like all banks, as a general proposition, is cautious, and as soon as this disaster happened they immediately quit loaning on those lands. But I got the Red Cross and the Salvation Army in our community to agree to put up \$1,500 to finance our farmers in the buying of seed wheat. That shows you the condition of our farmers in that neighborhood. We are going to tide them over; we are going to do everything we can for the small fellow. It is the small farmer who has not anything with which to buy seed wheat. We had some money sent in there by the good people of the United States, which was disbursed under the auspices of our Red Cross and our Salvation Army. There were about \$3,000 of that left, and they have agreed to turn it over to the farm bureaus for the fellows who can not afford to buy seed wheat.

Mr. SHAW. I believe you have something you would like to put into the record.

Mr. GARM. Yes; I have a statement in reference to the amount of loss sustained, which is something over \$300,000.

(The statement above referred to is as follows:)

BEARDSTOWN, ILL., September 9, 1922.

Memorandum of losses as reported by the citizens' relief committee to this date.

Individual citizens of Beardstown, Ill.	\$235, 514.62
City of Beardstown, Cass County, Ill.	12, 536.95
Amount of cash paid out for the flood relief committee for rehabilitation for the citizens of Beardstown	32, 000.00
Amount paid out to the farmers adjacent to the city of Beardstown	22, 000.00
Total	302, 051.57

Illinois River gauge record at Beardstown, Ill.

Year.	Highest reading.	Lowest reading.	
1870			
1871	April.....	11.7	
	May.....	13.4	
	December.....	8.9	
1881	June.....	16.1	
1882	February.....	17.8	
1883	April.....	21.65	
1884	April.....	16.6	
1885	April.....	14.0	
1887	February.....	16.5	
1888	May.....	13.4	
1889 ¹	June.....	12.0	
	Average for 11 years.....	15.39	
		Average for 10 years.....	1.09
1890	January.....	13.5	
1891	April.....	12.8	
	May.....	18.4	
1892	March.....	17.0	
1894	March.....	9.8	
1895	March.....	8.6	
	No record.		
1897	No record.		
1898	April.....	19.9	
1899	March.....	14.0	
	Average for 8 years.....	14.25	
		Average for 8 years.....	5.89
1900 ²	March.....	17.7	
1901	April.....	15.2	
	May.....	18.0	
1902	July.....	17.0	
1903	March.....	19.2	
1904 ³	March.....	17.0	
	Average for 5 years.....	17.42	
		Average for 5 years.....	7.06
1909	May.....	18.80	
1910	January.....	14.80	
	October.....	16.90	
1911	October.....	18.75	
1912	April.....	21.73	
1913	April.....	13.40	
1914	April.....	14.78	
1915	August.....	16.58	
	Average for 7 years.....	16.58	
		Average for 7 years.....	7.68
1916	February.....	20.62	
1917	June.....	19.07	
	March.....	15.48	
1918	March.....	19.49	
1919	April.....	14.65	
1920	May.....	25.00	
1921	April.....		
1922			
	Average for 7 years.....	19.36	
		Average for 7 years.....	7.99

¹ 1889 is the year LaGrange Lock was put in service.

² 1900 is the year Chicago Sanitary Canal was turned in.

³ Gauge readings 1905-1908, inclusive, not available.

High and low gauge readings for 1922 up to September 1, by months.

Months.	Highest.	Lowest.	Months.	Highest.	Lowest.
January.....	13.95	9.80	May.....	22.38	13.53
February.....	11.60	9.98	June.....	13.47	9.58
March.....	18.72	11.03	July.....	9.52	8.92
April.....	25.00	19.08	August.....	8.25	8.10

STATEMENT OF MR. JOHN GOODELL, CIVIL ENGINEER, BEARDSTOWN, ILL.

Mr. GOODELL. Mr. Chairman, I would like to answer Mr. Clouse's question because of the fact that I am an engineer and probably would understand it better than Mr. Garm.

In 1889 the Government built the La Grange Dam. At that time there was considerable cultivation in that district. That raised the water at Beardstown 7 feet. But at that time there were no levees built. That put the water, perhaps, over 50,000 acres of low pasture land that was not cultivated, but they paid no damage for that. Nothing was said because the land was not very valuable. But the effect of that was that it affected the drainage of a great deal of the valley land as well as other land. The result was the farmers commenced the levee in order to protect themselves. The leveeing proposition has been going on for 20 years, until now there are over 300,000 acres, and a valuation of \$75,000,000 invested in levees and reclaimed land.

Mr. BOND. That is in connection with the reclaimed projects?

Mr. GOODELL. In reclaimed land, and there is over \$100,000,000 worth in the valley affected by the flood of 1922 and over \$20,000,000 worth of damage done by the flood of 1922.

We feel that it is the duty of the War Department, or the Government of the United States, to open that channel now by taking out those locks or building levees, or lowering the channel there so it will create more storage above the present level. As it is now, it is above the level of the ground, and we think they should restore it to its primitive condition so we can maintain our levees. Otherwise, we are gone.

Mr. BOND. How much traffic is there on that river?

Mr. GOODELL. There is a great deal of local traffic on the river. The through traffic is light. There is one steamboat that makes a regular trip, and all the coal used in that section is handled on the river. It is as follows:

	Tons.
Grain.....	180,000
Way freight.....	45,000
Coal.....	125,000
Gravel.....	150,000
Apples.....	12,000
Total.....	322,000

Mr. GILMAN. Millions of bushels of corn are transported on that river which have no railroad outlet.

Mr. CLOUSE. What is your suggestion, as an engineer, as to the most economical way to handle the situation? Should there be dredging done or should the dam be destroyed? There is considerable expense in the removal of a dam.

Mr. GOODELL. My theory about it is that the channel will have to be constricted and the dams removed. It is my judgment that the engineers who planned the sanitary district and who figured that the Illinois River would be a navigable stream after the 4,200 cubic feet of water was turned in from Lake Michigan, figured on 4,200 feet in the valley below, but when it flooded the valley it created so much water surface and the evaporation was so great that it did not turn out as they expected. I suppose we do not get half of that amount at the mouth of the river in warm weather. So there are a few days in late summer when the stream drops down so that it does not remain at as high a gauge as they expected. That is because of the large surface and shallow volume. The water at low stage covers about 100,000 acres more than it should cover. If the river were constricted by leveeing we would then get a uniform flow, and I doubt if it would be necessary to do much of this work, except remove the dams and locks with 4,200 feet coming from the Great Lakes.

Mr. SHAW. Mr. Chairman, we will now hear from Mr. G. W. Morton, the postmaster of Beardstown, in reference to the mail service in the valley during the 1922 flood.

STATEMENT OF MR. G. W. MORTON, POSTMASTER, BEARDSTOWN, ILL.

Mr. MORTON. Mr. Chairman and gentlemen of the committee; with your permission, I would like briefly to show that this bill not only concerns the people of the Illinois River Valley but indirectly the entire United States, and more particularly the people of the central part of the country.

The Post Office Department is not only the largest business institution in the world, but it affects other business more than any other institution, for when the mails are interfered with the entire country is affected.

Beardstown, Ill., which suffered the greatest damage from the flood of the Illinois River last spring, is located on what, in the language of the Postal Department, is known as the Rock Island and St. Louis division of the Chicago, Burlington & Quincy Railroad, and is the terminal of the Beards and Shaw (Beardstown and Shawneetown) division of the Baltimore & Ohio Railroad.

The Rock Island and St. Louis division is the route over which the bulk of the mail between the South and North is carried, connecting especially the States of West Virginia, Louisiana, Mississippi, Missouri, Arkansas, Alabama, southern Indiana, and eastern Texas in the South, and Minnesota, Iowa, Wisconsin, Montana, and North and South Dakota in the North. Smaller amounts are carried between other States.

The Beards and Shaw carries mail from the East and South to the North and Northwest, connecting with the Rock Island and St. Louis road at Beardstown.

You will understand that mailing clerks in post offices and railway mail clerks tie their letters for States and cities in large bundles and route them over the railroads making the shortest time. Therefore, mail originating along railroads through the South toward

St. Louis, such as the Frisco lines, the Missouri Pacific, Illinois Central, and others, intended for such roads as the Chicago, Burlington & Quincy west of Galesburg, Ill., the Rock Island, Chicago, Milwaukee & St. Paul, the Great Western, and the Great Northern, and other roads connecting at Rock Island, Ill., and St. Paul, Minn., and the reverse, is routed over the road running through Beardstown. The Baltimore & Ohio road connects mail at Beardstown with the Burlington route for the Northwest.

I have here a few labels handed me by one of the railway mail clerks working out of Beardstown, which will illustrate what I mean.

The high water of last spring washed out parts of both roads entering Beardstown, so that the only trains entering the city were from the South. One of the principal mail trains on the Baltimore & Ohio was annulled before reaching Beardstown April 14, and did not resume service until May 2. The other detoured, arriving too late to make connections.

On April 16 part of the tracks of the Chicago, Burlington & Quincy were washed out, and through service was discontinued until April 24. This interference caused a delay of from 24 to 36 hours in the through mail, as it was necessary to send it over other routes. This is also true of express and freight. It is true that during this time the Beardstown mail to and from the North was transferred by boat across the Illinois River to Frederick, 4 miles north, but the volume of through mail was too great to transfer by motor boat.

Locally, the delivery of mail was impossible part of the time. Beardstown is a city of 1,977 homes, with a population of 8,074. Of this number, 486 families, with 2,017 people, were forced to move from their homes, the water being 12 feet deep at some places. Eight hundred and ninety-eight families, with 3,097 people, although not forced to move, were surrounded by water, and many of them were compelled to use boats to leave their homes. This includes that part of the city where the business and professional men live.

On the city delivery route served by the carrier which delivers mail to the majority of the homes of the business men, there are 363 families, with 1,273 people. Of these families, 26 moved out, 195 were surrounded by water, and 142 were on dry spots. In the entire city, 693 families, with 2,658 people, or only 39 per cent of the population of the city, were on dry land.

The Post Office Building, which is a new Federal building, was entirely surrounded by water, the water in front of the building being 43 inches deep. The building could be reached only by means of a bridge extending more than a block south of the post office.

The depot is 3,055 feet from the post office. The water between the two points was from 12 to 40 inches deep, and it was impossible to carry the mail, except by boat.

When the water first began coming into the city, we delivered the mail with hip boots and boats. This was so slow it was necessary to put on extra help. The postmaster himself delivered mail part of the time. When the water became too deep to wade, boats became too slow to cover all the city, and the trains arriving at such uncertain times, delivery was suspended entirely for about two weeks, the people boating to the office for their mail and distributing the mail to the other families living in their respective blocks. The parcel

post, however, during this time, was delivered in boats, except that portion for the business houses, which, at the request of the business men, was kept in the office as a matter of protection, the water averaging 18 inches in the stores.

On the rural routes, mail was delivered as long as possible, although under difficulties. The route covering the richest farming land around the city serves a total of 117 families. Of these, 44 families were surrounded by water. Some of the farmers boated their livestock to dry land. This carrier, for six weeks, drove 20 miles out of his way to get the mail to as many families as possible.

Another carrier delivered part of his mail by motor boat, and the remainder he delivered to a substitute who covered the dry land with horses. It was impossible to get from any part of his route to town except by boat.

The third carrier, 63 years of age, for a week walked 6 miles to reach patrons he could not get to except through fields. For 14 days he went to Hagerer, a small flag station 5 miles south, from where he delivered his mail.

The basement of the Federal building was flooded with water. The men worked all night one night to keep it out, building sand bag levees and using other means; but when the river, less than 100 feet from the building, overflowed its banks, it was impossible to keep it out, and several hundred dollars damage was done to the building.

Mr. CHALMERS. Was there any loss of life?

Mr. MORTON. There was no loss of life. But many of these people who did not move from their homes were compelled to use boats to get up town or even away from their homes. This includes the part of the city in which the business and professional men live. On the city delivery route served by the carrier who delivers mail to the section of the city where the business and professional men live there are 363 families with 1,273 people. Of these families, 96 moved from their homes, 195 were surrounded by water, and 142 were on dry land. In the entire city, 693 families, with 2,658 people, or 39 per cent of the population, were on dry ground.

The sewage, of course, was affected in the entire city. The water in front of the Post Office Building was 43 inches deep, and it is on pretty high ground. The building could be reached only by means of bridges or boats.

Mr. BOND. I am satisfied that the committee realizes the necessity of the drainage there, but what we would like to know is about the practical way in which this flood condition could be prevented, and I think it might be well for you to devote the rest of your time to that feature.

Mr. SHAW. I will now ask the committee to hear Mr. Goodell.

STATEMENT OF MR. JOHN GOODELL, CIVIL ENGINEER, BEARDSTOWN, ILL.—Continued.

Mr. GOODELL. Mr. Chairman and members of the committee, in the years 1902 and 1904 the War Department, by authority of Congress, made a survey of this valley, and \$200,000 was appropriated for that purpose. That survey was the most complete survey, I think, that was ever made in the central West. It was a splendid survey. The maps and all the data are available. The data were taken in the

field in the year 1902. Since that time the map has changed and conditions have changed. There have been some 69 drainage districts organized and levees built. The valley has been constricted 80 per cent by levees; that is, not the channel, but the valley. The problem now is altogether a different problem from what it was at the time the survey was made. There is not a large amount of data to be taken. The levees are simply to be located, I take it, and the gauge readings and some cross sections are to be taken. I would say that is about all that is necessary to determine what would be required to prevent a recurrence of this flood.

It is my opinion, as I stated before, that the greatest mistake perhaps that was made in the computation of the flow in the lower river was in the evaporation. I am satisfied that I could show you the report of the survey in 1902 where they estimate that the same amount of water will pass Alton, a short distance above St. Louis, 300 miles below Chicago, which passes through the controlling works at Chicago. I should say that that estimate is a mistake, and that the same amount of water would not pass points below in the higher temperature that is turned in above.

I want to introduce into the record a profile, a copy of which may be found in House Document No. 263, Fifty-ninth Congress, first session, in volume 83, House Documents, page 17, which I have marked "Exhibit A." That will give this committee an idea of what this river valley is. It is different from any river valley in the United States. In my judgment there is nothing like it in the United States. It is really not a river, it is a lake 300 miles long. It is only 33 feet lower at Grafton than at La Salle, which is 223 miles from Grafton. Can you imagine that the river backed from Beardstown to La Salle, a distance of 144 miles? Really, there is not much flow in such a river, and all there is to it is its storage. It has a wonderful storage capacity, and that storage has been destroyed by three things—the levees, the locks, and the sanitary districts. It is true that in low water the sanitary districts, as far as the volume is concerned, do not hurt it, but it fills all the lakes, all the space that should be there, to receive the flood when it arrives. In a state of nature the river would get very low, so low that these vast lakes alongside the river would cease to connect with the river and those lakes would go 3 or 4 feet below the level of the river, by evaporation. That space would be there to receive the storage in time of flood.

My idea is that if the floods are controlled and the channel maintained, the first thing to be done is to restrict the channel so it will be uniform.

I have an authority here that I want to quote to you. I want to put into the record the second paragraph on page 18 of House Document No. 263, which I referred to a moment ago, in which this board of engineers say the dam can be removed. It says:

From the dam above Utica to Grafton the low-water slope of the Illinois River is exceedingly small, varying at different places, but not exceeding 0.13 foot per mile for long distances. The natural low-water discharge of 500 cubic feet per second at Utica was not sufficient to maintain an open channel suitable for river navigation, and the river was improved by locks and dams, as mentioned on pages 8 and 9 of this report, under the head of "Present improvements." The additional flow provided by the Chicago Drainage Canal is now 4,200 cubic feet per second. It will allow the removal of the present locks and dams, and it makes practicable the maintenance of an open channel considerably deeper than the 7 feet now provided by those structures. The in-

crease to 10,500 cubic feet per second will make practicable a still larger open channel.

I also want to read into the record this statement in volume 17 of the Reports of the United States Geological Survey, at page 744:

The lower Illinois River at very low stages has but 1½ to 2 feet of water on the bars. At such times navigation must of course be suspended. The present dams and locks are of service only at ordinary low water. It is evident that the present system of navigation by dams and locks interferes with rather than aids the stream in its efforts to form a channel adapted to the small volume of water which it has carried since the lake outlet was abandoned. Any obstruction to the flow must decrease the effective work of the stream.

I also want to read into the record a quotation from the report of Alvord & Burdick, consulting engineers, of Chicago, who made a survey and report for the State Waterways Department of Illinois. You will find that at the bottom of page 140 and the top of page 141, and you will find that there they quote Colonel Bixby and others, saying it can be done, and recommend that the locks be taken out. They also submitted a plan in which they suggested that the districts be fixed so they can draw water off the top or crest of the flood into the districts. That is certainly impracticable, as far as that district is concerned.

These engineers, in their report, say:

The next question is, Can the dams now be removed providing compensating channel improvements be made? On page 18 of a report by a board of officers of the Corps of Engineers of the United States Army upon a navigable waterway through the Illinois River, Document 263, Fifty-ninth Congress, first session, signed by Colonel Ernst, Lieutenant Colonel Bixby, and Major Casey, the following statement is made: "The additional flow provided by the Chicago Drainage Canal is now 4,200 feet per second. It will allow the removal of the present locks and dams and it makes practicable the maintenance of an open channel considerably deeper than the 7 feet now provided by these structures."

Our computations are in accord with this statement, but we find that considerable dredging and channel regulation work will be required to accomplish the above results. The rivers and lakes commission recommends and advises as follows:

1. The four State and Federal dams in the Illinois River between Utica and the Mississippi River should be removed, subject to the provision that the dredging and channel improvement necessary to secure a minimum depth of 7 feet is insured.

2. The sanitary district of Chicago should be permitted to remove the Henry and Copperas Creek Dams, subject to specific stipulations as to dredging regulations by the State through the rivers and lakes commission or other authorized State agency.

3. The Federal appropriation of \$1,000,000 for the improvement of the Illinois River (section 1 of the rivers and harbors act approved June 5, 1910), is now legally available and should be appropriated at once to dredge the lower Illinois River so that the Government dams at La Grange and Kampsville may be removed and a navigable depth of 8 feet be secured without such structures.

Anybody who has ever seen the water in one of these districts would never propose using them for storage. There are a lot of lakes and a large territory now that are not leveed, that can be fixed as reservoirs to take care of the water and draw it off of the crest of this flood, and, in my judgment, that is the proper thing to do to store the water.

In addition to those things which I have mentioned, there have been other things that caused the 1922 flood. Tributary rivers have been strengthened, and one of the principal tributaries of the Illinois River comes into the Illinois River above Beardstown. That was a contributing cause, probably, for this flood occurring at this time at

this place, and it was worse at Beardstown than at any other point on the river.

From 1831, from the time when white men first came there, until 1913, we find this situation. There is an old man near Havana by the name of Potts, who is now 91 years of age, and he kept on the face of the lock opposite Havana marks and dates showing all the high water since 1831, and those can all be covered with the hand extended, with the thumb and fingers spread out like that [indicating], and for 90 years the settlers had reason to believe that the water would never pass that point. They built houses and they improved the valley, when, all of a sudden came this great flood of 1922, after all this work was done, after the locks were put in and a levee built—and really there was not a great deal of necessity for the levees until the locks were in; but one man would build a levee and another would build a levee somewhere else, and somebody would build a lock, until it has gotten to the place where some function of the Government has got to take hold of it and give it some radical relief; otherwise there will be a great loss of property and the railroads will have to be raised. The vice president of the Burlington road is with us this morning and he will tell you what their losses are.

As I said, the value of this property is nearly \$100,000,000, and there has been \$20,000,000 in losses. That is not a small thing.

Mr. CLOUSE. What would you say if the Chicago drainage district should divert its water to cover this point other than into the Illinois River? Could that be done, and if it could be done, would it not be a good thing for you?

Mr. GOODELL. I concede that the rights of three and a half million people ought to be respected, to a large degree; their health ought to be protected. It would help us, and we would like to be restored to a state of nature.

Mr. CLOUSE. As a practical proposition, can it be done?

Mr. GOODELL. The waters can be kept up there, but they can treat their sewage just as many other cities are doing.

Mr. CLOUSE. Can it be done without throwing the sewage into the Illinois River?

Mr. GOODELL. A large percentage of it. I think there is a part of it in the central district of Chicago that probably would have to be diluted and carried out through the water. But a large percentage of it can be taken care of by the city treating plant.

Mr. SHAW. Mr. Chairman, I would like to introduce to the committee Mr. E. E. Roustan, and ask that he be permitted to extend his remarks on the early history of the river, in a discussion of the crop situation, and in regard to the question of navigation on the river.

Mr. BOND. Without objection, permission is granted.

STATEMENT OF E. E. ROUTSON, LEWISTOWN, ILL.

Mr. ROUTSON. I have lived in the Illinois River Valley all my life. Previous to the time of the building of the locks at Copperas Creek in 1877 by the State of Illinois and the building of the LaGrange locks and dams 14 miles below Beardstown by the United States Government in the year 1889, the valley was heavily wooded and the

lumber industry was a large industry, furnishing employment to thousands of men.

The valley was also filled with cattle, sheep, hogs, and horses and was rich in all kind of grasses, but since the dates above mentioned the timber has been destroyed by the action of the water, also the pasture destroyed by the same cause.

On January 17, 1900, the Sanitary District of Chicago opened their canal from Lake Michigan, letting 4,167 second-feet into the Illinois River, until at the present time where timber used to grow, livestock used to range, the same territory is now inhabited with frogs, snakes, and turtles and is now an open lake, unfit for cultivation and unfit to be inhabited by man, and every year and constantly since the water was turned in from Lake Michigan the water from the river has crept higher on the slope of the valley, and by so raising the water as above stated the public highways have been flooded to such an extent that the river is no longer accessible for freight from the higher lands above, and thereby has destroyed the usefulness of said river for navigation locally.

Mr. SHAW. Mr. Chairman, I present Mr. C. B. Carithers, and ask that he be permitted to submit a statement prepared by Mr. George C. Lowe, a civil engineer, of Beardstown, Ill.

Mr. BOND. Without objection, permission is granted as requested.

STATEMENT OF MR. C. B. CARITHERS, TABLE GROVE, ILL.

Mr. CARITHERS. The report I have to offer as evidence of the financial ruin occasioned by the extreme height of the Illinois River in April, 1922, covers only on that district in which I am personally concerned. I represent the drainage and levee districts of the State of Illinois, of which my district is a member, and the report which I submit, while covering only on Coal Creek drainage and levee district, the ruin in other inundated districts due to the same cause and at the same time are identical in the same proportion as they are larger or smaller in number of acres contained.

Mr. Chairman, this report upon the flood loss caused by the April floods this year relates only to the Coal Creek drainage and levee district, where I am one of the commissioners. But the same general statement will apply to every district on the river. It is a report made by Mr. George C. Lowe, the engineer of the Coal Creek drainage and levee district, and is dated April 29, 1922, shortly following the date of the flood.

Mr. MICHAELSON. What relation has Coal Creek to the river at this particular point?

Mr. CARITHERS. The district was named for Coal Creek, which is a creek which comes out of the hills and has been diverted around a body of 6,500 or 7,000 acres of land, and the district is incorporated and named for Coal Creek.

Mr. MICHAELSON. What bearing would that have upon the situation?

Mr. CARITHERS. This report?

Mr. MICHAELSON. Yes.

Mr. CARITHERS. It shows the total loss and damage due to this flood in our district alone.

Mr. SHAW. I think I can answer that question by saying it will have reference only to the importance of flood control.

Mr. MICHAELSON. Flood control in general?

Mr. CARTHERS. In general; it has no particular bearing on any particular question.

(The report above referred to is as follows:)

REPORT UPON FLOOD LOSS OF THE COAL CREEK DRAINAGE AND LEVEE DISTRICT.
SCHUYLER COUNTY, ILL., WITH AN ESTIMATE OF THE AMOUNT OF DAMAGES.

[George C. Lowe, civil engineer, Beardstown, Ill. George C. Christie, Jesse Lowe, Jr.,
Dwight B. Carithers, commissioners.]

BEARDSTOWN, ILL., April 29, 1922.
GEORGE B. CHRISTIE, JESSE LOWE, JR., DWIGHT B. CARTHERS,
Commissioners Coal Creek Drainage and
Levee District of Schuyler County, Ill., Beardstown, Ill.

GENTLEMEN: Acting under your instructions, I have made a preliminary survey and estimate of the loss and damage to property resulting directly from the inundation of your district on April 16, 1922. This data has been compiled and summarized from the detailed records of individual losses suffered by the various landowners and farmers interested and living upon the lands of the district; from personal knowledge and observation of values and loss of property; from estimates of cost to repair and rebuild the works of the district, such as levees, interior ditches, tiling, pumping station, roads, and bridges; and from the officers of the public utilities operating within and through your lands. While it is impossible to state the degree of accuracy of the amount of damage and loss, owing to present flood conditions, the amounts given herein will be very close.

ORGANIZATION AND LOCATION OF DISTRICT.

The Coal Creek Drainage and Levee District was organized in the latter part of the year 1896 under the drainage and levee act of Illinois. It is situated in west central Illinois, at the eastern part of Schuyler County, in Frederick and Bainbridge Townships, borders the Illinois River for about 9 miles, and is directly opposite Beardstown, Cass County, Ill.

The district embraces a gross acreage of 6,718.50 acres, of which 6,441.67 acres are assessable.

WORKS OF THE DISTRICT.

The works of the district include 9.4 miles of river levee, of which 3.1 miles are owned and maintained as an embankment by the Chicago, Burlington & Quincy Railroad Co. for their double-tracked main line. Other works and property of the district are 3.3 miles of levee and diversion ditch, 10 miles of interior drainage ditches, 6 miles of tiling, two small highway bridges, and an electric pumping plant of 45,000 gallons per minute capacity, together with employees' quarters and outbuildings.

IMPROVEMENTS AND VALUE OF LAND.

Improvements within the district consisted of 22 complete sets of farm buildings, 1 schoolhouse, 10.5 miles of public roads, 11 miles of private roads, 12 bridges, tiling, fencing, etc. State trunk highway route 3, leading from Quincy to Springfield and to be constructed of concrete, has been routed through the district for a distance of 3.3 miles and is to be built this year.

The population is 150 to 300, depending on the season.

Practically all of the land—6,300 acres—was under a high state of cultivation. The soil is representative of the highest type of Illinois corn belt lands—a rich, alluvial deposit. The principal products raised are corn, wheat, and other crops common to the Corn Belt. Stock raising is also of increasing importance.

Estimated conservatively, the value of the land and improvements, exclusive of growing crops and personal property, at \$250 per acre, represented a total of \$1,679,625. This figure does not include public property and property owned by public utilities.

INUNDATION OF THE DISTRICT.

The direct cause of the flooding of the district by the waters of the Illinois River was due to overtopping of the east levee used by the Chicago, Burlington & Quincy Railway Co. for their double-track main line. By 7 o'clock a.m., April 16, 1922, a wash, about 1 mile south of the village of Frederick, gradually widened until it was beyond repair. Other places along the embankment were overtopped and cut through later. The stage of the river at Beardstown, at the time of the break, was 2.3 feet above the highest stage on record. This stage was exceeded by nearly one-half foot several days later.

Approximately 50 hours elapsed before the water inside of the levees was at the same level as the river, and when this equilibrium was reached the water stood on the lands to a depth of from 11 feet to 22 feet. (See appendix for list of gauge readings covering high stages of river since 1844.)

Although a discussion of the probable causes of this unprecedented high water does not fall within the scope of this report, it does not seem out of place to mention some of the most important of the contributing factors:

1. Excessive rainfall.
2. Excessive and illegal amount of water entering the river through the Chicago Drainage Canal from Lake Michigan.
3. Artificial obstructions in the channel of the river, such as Federal dams and locks.
4. Natural channel obstructions, such as islands, bars, and stretches of the river where silting has occurred.

LOSSES AND DAMAGES.

In determining the amounts of loss and damage, no attempt has been made to estimate the intangible economic loss to the community, growing out of loss of reputation of the district, local business depression, absolute interruption of rural transportation, and other phases. While it is impossible to arrive at the amount of these losses, they are important and should be considered. The tabulation of tangible losses given below has been carefully and conservatively compiled.

Summary of losses and damages.

Loss to district, property owners, and farmers:	
Works of Coal Creek drainage and levee district	\$101,400.00
Commissioners of highways and county bridges	3,100.00
School board	2,000.00
Buildings	94,900.00
Tiling	30,500.00
Fencing	1,835.00
Private roads and bridges	3,600.00
Farm machinery, tools, harness, and equipment	27,750.00
Household goods and furniture	10,905.00
Crops, meadows, and pasture	180,592.00
Grain, seed, hay, and straw	28,530.00
Livestock and chickens	498.00
Total	485,520.00
Loss due to depreciation of market value:	
6,718.5 acres, at \$75 per acre	\$503,890.00
40 acres, at \$150 per acre (covered with sand, cinders, and other debris)	6,000.00
Total	509,890.00
Loss to public utilities:	
Central Illinois Public Service Co.	\$24,000.00
Illinois Bell Telephone Co.	39,600.00
Chicago Burlington & Quincy Railway Co.	447,750.00
Total	511,350.00

Total amount of loss and damage 1,413,510.00
A detailed census and estimate of which the above is a summary will be found in the appendix to this report.

Respectfully submitted,

GEO. C. LOWE, Civil Engineer.

APPENDIX.

In preparing the following itemized estimates, for convenience the different tracts of land in the district have been treated under the names of the various landowners. The amounts given include the losses of tenants and damage to all property upon the lands as divided herein, regardless of the actual ownership of the property.

All amounts as set forth are the amounts of loss or damage after considering the salvage value of partially destroyed property. Nearly all of the livestock was saved, also a small part of the farming machinery and personal property.

GEO. B. CHRISTIE.

Winter wheat, 817 acres, at \$33	\$26,961.00
Spring wheat, 160 acres, at \$33	5,280.00
Meadow (clover, hay, etc.), 100 acres (clover), at \$24	\$32,241.00
Lots and pasture, 60 acres, at \$15	2,400.00
Corn land, 924 acres, at \$25	900.00
Grain in stock:	
Corn, 16,000 bushels, at 50 cents	\$8,000.00
Oats, 1,200 bushels, at 40 cents	480.00
	8,480.00
Hay and straw in stock:	
13 tons hay, at \$17	221.00
45 tons straw, at \$10	450.00
	671.00
Seed in stock: Seed wheat, 110 bushels, at \$2.25	247.50
Livestock and chickens	50.00
Farm machinery, tools, harness, etc	11,000.00
Bridges, 3, at \$600	1,800.00
Tiling	11,000.00
Fencing	500.00
Buildings	25,000.00
Household goods and furniture	5,000.00

JESSE LOWE ESTATE.

Winter wheat, 605.7 acres, at \$33	19,988.00
Meadow, 24.9 acres, at \$24	598.00
Lots and pasture, 55.6 acres, at \$15	834.00
Corn land, 32.8 acres, at \$25	15,820.00
Oats land, 167.1 acres, at \$20	3,342.00
Soy bean land, 48.7 acres, at \$25	1,218.00
Grain in stock:	
Corn, 17,600 bushels, at 50 cents	\$8,800.00
Oats, 700 bushels, at 40 cents	280.00
Soy beans, 181.6 bushels, at \$3	544.80
Cowpeas, 48.3 bushels, at \$2	96.60
	9,721.40

Hay and straw in stock:	
Hay, 48 tons, at \$17	\$16.00
Straw, 6.2 tons, at \$10	62.00
	878.00
Seed in stock:	
Seed corn, 35 bushels, at \$2	70.00
Rye seed, 50 bushels, at \$1	50.00
	120.00
Livestock and chickens:	
Hogs	340.00
Chickens	25.00
	365.00
Farm machinery, tools, and harness, etc.	8,000.00
Bridges	600.00
Tiling	8,300.00
Fencing	400.00
Buildings	30,000.00
Household goods and furniture	2,500.00

THOS. A. HAMMOND.

Winter wheat, 400 acres, at \$33	\$13,200.00
Meadow (clover), 60 acres, at \$24	1,440.00
Lots and pasture, 57 acres, at \$15	855.00
Corn land, 357 acres, at \$25	8,925.00
Oats land, 30 acres, at \$20	600.00
Grain in stock: Corn, 9,000 bushels, at 50 cents	4,500.00
Hay in stock, 10 tons, at \$17	170.00
Seed in stock, 50 bushels, seed wheat, at \$2.25	112.50
Farm machinery, tools, harness, etc.	3,000.00
Bridges	1,200.00
Tiling	4,800.00
Fencing	300.00
Buildings	22,000.00
Household goods and furniture	1,500.00

E. E. SCHULTZ.

Winter wheat, 190 acres, at \$33	6,270.00
Meadow (clover), 50 acres, at \$24	1,200.00
Lots and pastures, 20 acres, at \$15	300.00
Corn land, 61 acres, at \$25	1,525.00
Seed in stock: 6 bushels clover seed, at \$15	90.00
Farm machinery, tools, harness, etc.	1,000.00
Tiling	900.00
Fencing	100.00
Buildings	3,500.00
Household goods and furniture	500.00

C. J. WHITE.

Winter wheat, 100 acres, at \$33	3,300.00
Meadow, 20 acres, at \$24	480.00
Rye land, 35 acres, at \$30	1,050.00
Corn land, 120 acres, at \$25	3,000.00
Grain in stock:	

Corn, 400 bushels, at 50 cents	\$200.00
Oats, 200 bushels, at 40 cents	80.00
	280.00
Hay in stock:	
Hay, 2 tons, at \$17	34.00
Straw, 2 tons, at \$10	20.00
	54.00
Livestock and chickens: 18 chickens	18.00
Farm machinery, tools, harness, etc.	1,000.00
Tiling	800.00
Fencing	100.00
Buildings	4,000.00

JOHN F. LOWER.

Winter wheat, 40 acres, at \$33	1,320.00
Meadow (clover, hay, etc.), 30 acres, at \$24	720.00
Lots and pasture, 10 acres, at \$15	150.00
Corn land, 70 acres, at \$25	1,750.00
Oats land, 10 acres, at \$20	200.00
Grain in stock:	
Corn, 1,000 bushels, at 50 cents	\$500.00
Oats, 50 bushels, at 40 cents	20.00
	520.00
Hay in stock:	
Hay, 1 ton, at \$17	17.00
Straw, 50 tons, at \$2	100.00
	117.00
Chickens	15.00
Farm machinery, tools, harness, etc.	3,450.00

Tilling	\$1,200.00
Fencing	100.00
Buildings	5,500.00
Household goods and furniture	800.00

HAWKINS, GLASS & BOTTERBERG.

Winter wheat, 40 acres, at \$33	1,320.00
Meadow, timothy 5 acres, clover 30 acres, at \$24	840.00
Corn land, 76 acres, at \$25	1,900.00
Grain in stock:	
Corn, 2,000 bushels, at 50 cents	\$1,000.00
Oats, 500 bushels, at 40 cents	200.00

Hay in stack, 7 tons, at \$17	119.00
Farm machinery, tools, harness, etc.	300.00
Tilling	600.00
Fencing	100.00
Buildings	4,500.00
Household goods and furniture	225.00

T. J. SCHWEER.

Winter wheat, 80 acres, at \$33	2,540.00
Corn land, 40 acres, at \$25	1,000.00
Grain in stock, corn, 2,500 bushels, at 50 cents	1,250.00
Chickens	50.00
Tilling	500.00
Buildings	200.00
Household goods and furniture	380.00

ARTHUR OETGEN.

Winter wheat, 60 acres, at \$33	1,980.00
Corn land, 60 acres, at \$25	1,500.00
Tilling	400.00
Fencing	100.00

HERMAN AND GAIL REBMAN.

Corn land, 27.5 acres, at \$25	687.50
Fencing	35.00

EARL J. KNIGHT.

Winter wheat, 80 acres at \$33	2,640.00
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Note.—There are approximately 140 acres of land owned by Mr. E. J. Knight that have never been included or assessed, although this land has been protected and benefited by the works of the district. The loss would apply to his land in approximately the same proportion as applied to other lands of the district, but such loss is not included here.

THOS. S. HODGSON.

Winter wheat, 200 acres, at \$33	6,600.00
Meadow (clover, hay, etc.), 16 acres clover, at \$25	384.00
Corn land, 234 acres, at \$25	5,850.00
Tilling	1,800.00

Fencing	200.00
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P. E. MANN.

Winter wheat, 40 acres, at \$33	1,320.00
Corn land, 39 acres, at \$25	975.00
Buildings	200.00

HARRY HOOD.

Winter wheat, 33.6 acres, at \$33	1,109.00
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WILLIAM C. HOOD.

Winter wheat, 66.3 acres, at \$33	\$2,188.00
Corn land, 37.7 acres, at \$25	942.50

COAL CREEK DRAINAGE AND LEVEE DISTRICT.

Cost of rebuilding levee, 225,000 yards, as 25 cents per yard	56,250.00
Cost of repairs to—	
Diversion ditch and levee, 3.3 miles at \$2,500 per mile	8,250.00
Interior ditches, 10 miles, at \$2,500 per mile	25,000.00
Pumping plant, repairs and renewals	5,000.00
Employees' house at pumping plant—	
2-story house	\$2,500
Coal house	500
Outbuildings	300
Tilling, 6 miles—value, \$6,000; depreciation one-third	3,300.00
Bridges, 2 at \$800	1,600.00
Total	101,400.00

NOTE.—The above estimate does not include miscellaneous expenses, such as engineers' and attorneys' fees, court costs, etc.

COMMISSIONERS OF HIGHWAYS AND COUNTY BRIDGES.

Commissioners of highways, Frederick Township, damage to roads and culverts	1,000.00
Commissioners of highways, Bainbridge Township, damage to roads and culverts	1,000.00
County bridges:	
One bridge, total loss	\$800
Damage to 2 bridges	300
Total, commissioners of highways and county bridges	1,100.00

SCHOOL BOARD.

Schoolhouse, equipment, and outbuildings	2,000.00
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CENTRAL ILLINOIS PUBLIC SERVICE CO.

Damage to substation, repairs, renewals, etc	15,000.00
Damage to lines	4,000.00
Interruption of service	5,000.00
Total	24,000.00

ILLINOIS BELL TELEPHONE CO.

Damage to property, repairs, renewals, etc	30,000.00
Interruption of service, 4 days, at \$2,400 per day	9,600.00
Total	39,600.00

CHICAGO, BURLINGTON & QUINCY RAILROAD CO.

Interruption of service, 197 hours, at \$750 per hour	147,750.00
Rebuilding embankment and double track, and other incidental expenses	300,000.00
Total	447,750.00

High-water stages of Illinois River at Beardstown, Ill.

Year.	Month.	Stages in feet.		Year.	Month.	Stages in feet.	
		Beards-town gauge.	Memphis datum.			Beards-town gauge.	Memphis datum.
<i>Fed.</i>							
1844.....	Feb. —	22.40	449.7	1913.....	Apr. —	21.75	449.1
1853.....	Feb. —	21.35	448.7	1914.....	Apr. —	12.60	439.9
1858.....	Apr. 23	14.20	441.5	1915.....	Apr. —	13.90	441.2
1859.....	Apr. 23	14.20	441.5	1916.....	Apr. —	20.75	443.1
1887.....	Feb. 20	16.50	443.8	1917.....	June 17	19.80	446.4
1888.....	Apr. 13	13.50	440.8	1918.....	Feb. 28	15.70	443.0
1889.....	Jan. 3	11.90	439.2	1919.....	Mar. 29	19.50	446.8
1890.....	Jan. 3	13.50	440.1	1920.....	Apr. 27	21.90	448.6
1891.....	Mar. 15	12.80	440.1	1921.....	Apr. 5	14.60	441.9
1892.....	Mar. 15	18.40	445.7	1922.....	Apr. 1	19.10	446.4
1893.....	Mar. 14	17.00	441.3	1923.....	Apr. 2	19.40	446.7
1894.....	Mar. 20	9.50	437.1	1924.....	Apr. 3	19.70	447.0
1895.....	Mar. 20	8.40	437.1	1925.....	Apr. 3	19.70	447.2
1896.....	Jan. 30	13.40	440.7	1926.....	Apr. 5	20.30	447.6
1897.....	Apr. 4	17.60	444.9	1927.....	Apr. 6	21.10	448.4
1898.....	Apr. 14	19.65	447.6	1928.....	Apr. 7	21.80	449.1
1899.....	Mar. 14	14.10	441.9	1929.....	Apr. 8	22.20	449.4
1900.....	Mar. 10	17.70	445.0	1930.....	Apr. 9	22.10	449.4
1901.....	Aug. 7	15.20	442.8	1931.....	Apr. 10	22.40	449.7
1902.....	July 26	18.00	445.3	1932.....	Apr. 11	22.40	449.7
1903.....	July 26	17.00	441.9	1933.....	Apr. 12	22.40	450.0
1904.....	Apr. 3	20.00	447.3	1934.....	Apr. 13	23.10	450.4
1905.....	June 1	15.10	442.4	1935.....	Apr. 14	23.70	451.0
1906.....	Apr. —	15.80	443.1	1936.....	Apr. 15	24.20	451.5
1907.....	Feb. 1	18.50	444.8	1937.....	Apr. 16	23.40	450.0
1908.....	May 1	20.80	448.1	1938.....	Apr. 17	24.40	451.7
1909.....	May 1	14.80	442.1	1939.....	Apr. 18	24.40	451.7
1910.....	Jan. 1	12.90	440.2	1940.....	Apr. 19	24.90	452.2
1911.....	Oct. 1	15.70	443.0	1941.....	Apr. 20	25.00	452.3
1912.....	Apr. —	17.40	444.7				

Mr. SHAW. Mr. Chairman, I would like to introduce Mr. H. T. Douglas, jr., chief engineer of the Chicago & Alton Railroad, and ask the privilege for Mr. Douglas of extending his remarks.

Mr. BOND. Without objection, that permission is granted.

STATEMENT OF MR. H. T. DOUGLAS, JR., CHIEF ENGINEER CHICAGO & ALTON RAILROAD CO.

Mr. DOUGLAS. Mr. Chairman and gentlemen, I was called to Peoria in April, when we had exceedingly high water in the Illinois River because a short belt railroad that the Alton road and the Rock Island own at that point was threatened with destruction. We worked very hard and earnestly to maintain this railroad, extending from Peoria to Pekin, a distance of 9 miles, for several days and several nights, when a very sudden and unexpected rise of the river developed a crevass along the banks of the Illinois River and flooded our tracks to the depth of 2 or 3 feet.

At this time all the railroads entering Peoria—and Peoria, you will remember, is the second city in point of population in the State of Illinois—were either out of commission entirely or were operating under the most extraordinary difficulties and expense. I do not think it would be useful to remind you of the great number of railroads that serve that city, and all those railroad lines suffered. The little Peoria railroad terminal has been made bankrupt by the losses it sustained. It is now in the hands of the United States court, and

operations on that line were suspended for two months and a half or more.

This railway serves a very important industrial community, one whose needs are very vital to the general prosperity of the city and State.

I have reviewed a great deal of data in the last day or so regarding Illinois flood control. Some of these gentlemen have reverted to the fact that Colonel Bixby, of the Board of Army Engineers, and others some years ago, recommended the removal of the two Federal dams in the Illinois River, the two upper dams having been constructed much earlier by the State to impound the waters during the summer months so that navigation on the upper reaches of the river might be maintained. The flow of the Illinois River is very low in the summer months, and prior to the construction of the drainage canal to assist navigation each year, through the Illinois and Michigan canal, which generally parallels the drainage canal from Chicago to Toledo, at great expense, large volumes of water were taken to augment the limited supply, the primary purpose of these dams being simply to impound the water.

As has been stated, there is 33 feet from La Salle to the mouth of the river at Grafton, 223 miles distant, which you may readily see is less than 2 inches to the mile. With the presence of these dams the river is absolutely slack water from its mouth for 260 miles upstream to the upper dam, and with the removal of those dams, with a reasonable amount of dredging, a precipitation of the solids in solution obviously would not occur to the same extent, and with the removal of the dams the continuous flow of the water would obtain, which would have the effect of very greatly relieving the crest flood conditions when they arrive.

It appears that there should be some control by Congress over that stream and certain very necessary work. The Illinois River is not only a very important Illinois stream, but its tributaries come from Wisconsin and Indiana.

(Subsequently Mr. Douglas submitted the following letter in extension of his remarks above:)

SEPTEMBER 29, 1922.

The RIVERS AND HARBORS COMMITTEE,

United States House of Representatives, Washington, D. C.

GENTLEMEN: Supplementing my comments before your committee in Washington on September 14, 1922, at which time I was requested to submit my written remarks, and in compliance I submit the following:

The Illinois River is formed by the junction of the Desplaines and Kankakee Rivers about 10 miles southwest of Joliet, Ill., and discharges into the Mississippi River at Grafton, Ill. The length of the Illinois River is substantially 273 miles. The watershed of the Kankakee River is 5,146 square miles; the watershed of the Desplaines River is 1,392 square miles. The principal tributaries with watershed are as follows: The Fox River, 2,700 square miles; the Vermilion River, 1,317 square miles, both discharging into the Illinois River above Hennepin. Below the bend the Illinois River receives the Mackinaw River, with a watershed of 1,217 square miles; the Spoon River, with a watershed of 5,670 square miles; and Crooked Creek, with a watershed of 1,335 square miles. The Sangamon River and many smaller streams in addition flow into the Illinois River. A few have watersheds exceeding 1,000 square miles. Approximately two-thirds of the tributary watersheds lie to the southeast, and in the lower 60 miles no important drainage reaches the Illinois River from the south. The Fox River discharges the poorly drained lake regions of northern Illinois and Wisconsin, and the Kankakee River the

large poorly drained area of Indiana. The drainage to both rivers is now being greatly augmented, as the large areas of marshy lands and tributaries are being reclaimed and made exceedingly valuable for agricultural purposes. The reclamations obviously greatly reduce the storage basins and accelerate the rainfall discharge, which obviously would have the effect of raising the flood level in the Illinois River.

In the Illinois River there are four dams and in their geographical order looking downstream they are the Henry Dam and the Copperas Creek Dam, both built by the State of Illinois, and the two dams, namely, the La Grange Dam and Kampsville Dam, which were constructed by the Federal Government. The Illinois River during the early developments of the State of Illinois was a very much more important artery of transportation than it is now, the railways largely handling the traffic of the country, but it still serves a valuable transportation service. The obvious purpose of constructing all the dams was to create practically slack water in the Illinois River from Henry to Grafton, Ill., impounding the water during the dry seasons of the year so as to provide sufficient depth of water to float the light-draft steamers and barges then and now employed on this river. The State of Illinois, to conserve the navigation of the River for many years and, indeed until the construction of the great drainage canal from Lake Michigan to the Desplaines River at Joliet, Ill., which was completed January 1, 1900, pumped from Lake Michigan into the Illinois and Michigan Canal and which extends from Chicago to Joliet on the Desplaines River and parallels the Drainage Canal built by the city of Chicago for the disposal of sewerage so that the city could prevent the contamination of the water of Lake Michigan upon which the city of Chicago is located and from which it is dependent for its water supply. With the completion of the drainage canal an enormously large quantity of water from Lake Michigan is needed to properly discharge the sewage of the city of Chicago into the Desplaines River. This with the construction of the four dams in the Illinois River, the reclamation of the lands along the tributaries and along the River, has resulted in raising to an alarming degree the flood level in the Illinois River. The Illinois River in April of this year reached a flood level of substantially $2\frac{1}{2}$ feet higher plane than has been known for a hundred years at Peoria, Ill. This flood resulted in the destruction of property of enormous value and resulted in serious interruptions of railway traffic, both destined to intra and inter state points.

The Illinois River valley is approximately 13 to 24 miles in width. The ground formation of this valley is alluvial. Generally throughout the length of this river the plateaus are 50 to 75 feet higher than the valley lands. The lines of demarcation are clearly drawn with precipitous bluffs, the formation of these bluffs being almost wholly of limestone which have through the ages disintegrated and carried lime to the low-lying valley lands, thus these valley lands are formed, as stated from the alluvial deposits of the river, with the disintegrating lime from the bluffs. It may be stated, without exaggeration, that these valley lands of the Illinois River are the richest agricultural lands to-day in the world. In a very large degree these lands have been reclaimed by the construction of levees to deflect outside drainage and with interior systems of drains and pumping installations to lift the waters that fall from the skies inside of the reclaimed lands over the levees and into the river during the flood periods in the river. These reclaimed lands now have extraordinary high value and will very greatly increase in value and in productivity with a reasonable assurance that measures will be taken by the Federal Government to insure them from serious injury during flood periods in the Illinois River, and it should be remembered that the artificial situations created, namely, the discharge of the drainage canal into the Illinois River and the construction of the dams in the Illinois River by governmental agencies are largely responsible for this situation.

The removal of the dams has been recommended by a committee of engineers of the United States Army, and I remember that General Bixby and General Ernst were members of this committee. A similar recommendation has been made by other eminent engineers, among them being Alvord and Burdick, who enjoy a very high reputation in this country, and in their very able report made for the State of Illinois all need for these dams seems now to have passed, and their maintenance appears unwarranted from the viewpoint that they are not of assistance but an injury to navigation; that they arrest the flow of the water and the discharge by the stream of solids in suspension, and their continuance will have the effect of precipitation of matter in suspension to the height of the top of the dam, with the result that the general level of the

stream has been increased substantially to the difference between the original level of the stream and the height of the dams that have been built.

The Illinois River has a fall of a little less than 2 inches per mile, less than one-fourth the fall in the Missouri River at Glasgow, Mo., and hardly a fall that would not produce a current that would be of sufficient velocity to be harmful to any navigation interest; on the contrary, it would appear scarcely sufficient to carry off sedimentation. It would seem desirable that harbor lines be established by the United States Engineer Corps to prevent any undue contraction of the river in the formation of any new reclamations or drainage district developments. It is my belief that the levees now constructed offer no impediment to the flow of the stream, but on the contrary accelerate the flow and will advantage navigation in some degree by carrying off the matter in suspension rather than in the enormous reservoir basins formerly obtaining, precipitating this alluvium.

It is my recommendation because of the enormous public and private interests involved that the Federal Government should remove the dams at once and should strengthen and raise or otherwise create a system of levees of ample proportions to improve the needs of navigation on the Illinois River and to conserve property of enormous value the levee work suggested to be performed by improving the channel of the river with hydraulic dredges and the silt removed to be pumped from the channel of the stream to reinforce a system of levees.

It is my firm conviction that it is the duty of the Federal Government to control all internal waterways over which the rights of navigation prevail, and nowhere can the people's money be expended with higher profit. It is notorious that the valley lands of our internal waterways are the most productive lands in this country; that there are many cities and smaller communities whose welfare and material prosperity are dependent upon their security from such disasters as the flood in the Illinois River of last April occasioned; and that in the Illinois River, because of these artificial situations created by the city of Chicago, the State of Illinois, and the Federal Government in the construction of these dams, it is peculiarly fitting that instant Federal action should be taken.

In closing, I recommend that the Rivers and Harbors Committee review the report made by Messrs. Alvord and Burdick, the eminent hydraulic engineers of Chicago, to the State of Illinois of the situations and conditions along the Illinois River in the year 1915. This report will be invaluable in the consideration and comprehensive knowledge of the situation.

Yours very truly,

H. T. DOUGLAS, Jr.,
Chief Engineer Chicago & Alton Railroad Co.

Mr. SHAW. Mr. Chairman, I will now introduce to the committee Mr. H. R. Safford, vice president of the Chicago, Burlington & Quincy Railroad Co., and ask for him the privilege of extending his remarks.

Mr. BOND. Without objection, that permission is granted.

STATEMENT OF MR. H. R. SAFFORD, VICE PRESIDENT CHICAGO, BURLINGTON & QUINCY RAILROAD CO.

Mr. SAFFORD. Mr. Chairman, the interest of the Burlington Railroad in this matter, of course, arises from its location in and occupancy of the particular territory where we cross the Illinois River at Beardstown. This is our main line from the coal fields to Chicago. We have suffered from the interruption of the traffic and the loss of our railroad for a period of several days during the flood of last spring, with the incidental expense connected with a situation of that kind.

I have not at hand information which would give you the actual loss we suffered, but that can be submitted in the extension of my remarks.

In April, 1922, the flood in the Illinois River rose to a point sufficient to extend over some of our tracks in the city of Beardstown, Ill., and in addition seriously damaged the embankment of the railroad north of Beardstown and between the north bank of the river and Frederick, Ill., a distance of approximately 4 miles.

Between these points the embankment acts as a levee, protecting the Coal Creek drainage district. During the flood period extensive efforts were made to prevent the water from overflowing the tracks, but the continued head against the embankment finally resulted in the latter being broken to an extent of approximately 640 feet, resulting in a delay to operations of approximately five days and causing an expenditure, including reparations, amounting to \$136,000. The overflow of our yard tracks in the city of Beardstown represented an expenditure of about \$5,000, making a total of about \$141,000 direct damage from this occurrence.

There, of course, was interruption of traffic, but it so happened that this particular flood occurring during the period of suspended coal-mine operations, otherwise the damage from delayed traffic would have been very serious.

In the restoration of the main track between Beardstown and Frederick, it has been arranged to raise the grade above the high-water level reached during that flood.

Mr. SHAW. Mr. Chairman, I would now like to introduce to the committee Mr. William F. Gilman, who will speak relative to the general situation on the Illinois River, and I ask for him the privilege of extending his remarks.

Mr. BOND. Without objection, that permission is granted.

STATEMENT OF MR. WILLIAM F. GILMAN.

Mr. GILMAN. Mr. Chairman and gentlemen, House bill 12620, which is presented for the consideration of your committee, has certain definite objectives. One of those is the navigation of the Illinois River; another is the consideration and study of the inflow of water from Lake Michigan; another is the protection of property of the people who live in the Illinois River Valley, which is of a flood-control character. Those are the general purposes of the bill.

We realize that it is utterly impossible to take your time in presenting the facts and data of such a character that would enable you at this time to give it the consideration it must have, so that no single interest shall be discriminated against. We also realize that you have at your disposal the services of the engineering staff of the War Department, and it is very probable that it will be necessary to have more complete data than we would be able to present to you. We merely wish to urge the importance and necessity of adequate and prompt action in order that the water from Lake Michigan may be taken care of, no matter what the cause of the inflow of that water may be, so that the country along this river valley may be developed, and that you gentlemen will consider this matter with as reasonable a promptness as you may be able to do in order to preserve all the interests and come to a solution of the problem, with such assistance as may be deemed wise to preserve the property and the homes of the cities and the people in these drainage districts.

Mr. BOND. I think I may say to you that you need not worry very much about our giving careful attention to this matter, because Mr. Shaw is after us all the time. He has been most assiduous in this matter, and I am quite sure it will have our attention and that action will be taken on it as soon as possible. Of course, you realize our limitations, because we will probably be taking a recess very shortly. (Subsequently Mr. Gilman submitted the following in extension of his remarks:)

Chairman and gentlemen of the committee, the bill presented to your committee, designated as H. R. 12620, has as its general object the preservation of navigation on the Illinois River and of securing such remedial measures as will preserve to the people of the Illinois Valley a security of their homes, their business enterprises, and their property.

The subject is big, the interests many, and the diversity great, in that the subject is not only local, but national and, in fact, international.

It is the purpose of those persons who have this morning presented evidence to your committee bearing on this situation, to show in a chronological manner the importance of this bill. Evidence has been presented of a historical nature covering a sufficient number of years to show the original state of the river and of the valley lands adjoining the river, the subsequent development of those lands for agricultural purposes. The building of the locks and dams, which at the time they were built were designed to aid navigation of the Illinois River and then in later years the gradual encroachment of the river, especially during flood times on the lands embraced within the valley.

It has been the purpose of these witnesses to show to this committee that over a period of a great many years the improvement of the Illinois River for navigation and of the lands adjoining the river for agricultural purposes has resulted in the building of many cities and towns along the river. This development has resulted in the investment of many millions of dollars, the bringing under cultivation of many thousand acres of land, and the ever-increasing desirability of the river as a transportation means for the shipment of produce and raw materials originating in the valley. This enormous improvement and development as well as the very homes of the people within this valley is now placed in serious jeopardy because of certain developments within the last few years.

Evidence has been presented to your committee to show that the locks and dams are now a menace to the enormous agricultural interests and to the property of those cities and towns that are in the lowlands of the valley. This evidence is further substantiated by reports and other data that has been submitted to committees of this Congress by their request at various times showing a desirability of the removal of the dams and that with a slight amount of dredging, the navigability of the river will be reserved for all practical means of transportation that can be prophesied to take place on the river in the distant future.

It has also been the purpose of these witnesses to call to your attention the excessive inflow of water from Lake Michigan. It has not been our special object to advise your committee of the reasons for this excessive inflow of water from Lake Michigan. The reason and the authority under which this inflow is permitted is a matter of public record obviously well known to this committee. It has been, however, the intention of these witnesses to submit to your committee evidence of a nature and character to show the serious damage that is occurring to all of the interests within this valley, which include not only the navigation of the river, the agricultural interests of the bottom lands, the cities and towns bordering on the river, together with the manufacturing and industrial interests centered therein, but also to call to your attention the great menace to the health of the peoples within this valley due to the unnecessary pollution of this body of water by the Sanitary District of Chicago.

Those persons who have to-day presented evidence to your committee bearing on this subject are representatives from the city of Beardstown, Ill., and the Association of Drainage and Levee Districts of the State of Illinois. Generally speaking, these gentlemen represent the people of the entire valley, including the urban as well as interurban population. The evidence will further disclose that the financial stability of the enormous investments within this

valley are seriously jeopardized, and that because of conditions now existing, financial credit for the further development of this valley is seriously impaired and will continue to be so until such time as the entire situation is taken under governmental supervision. The evidence shown by the record will call to the attention of the gentlemen of this committee that the War Department, through the Chief Engineer of Engineers, has compiled certain reports dealing with the navigability of the Illinois River consideration of the flood control, and the inadvisability of an excessive inflow of water from Lake Michigan. It is very probable that your committee will require further and additional reports of the War Department.

It is our desire that your committee avail itself of all the facts and complete information so that no single interest shall be discriminated against and that a prompt solution of the problem be made in order that the security of the people and property of the Illinois Valley shall not remain in jeopardy. It matters not whether the interests of the Illinois Valley are suffering from excessive inflow of water from Lake Michigan or whether the condition has been brought about by the building of levees or because of a quicker run-off of rainfall due to the development of the land and the consequent increase in population within the valley, the single fact remains—a condition does exist of such a character and magnitude as to menace the very existence of thousands of homes and the loss of millions of dollars of property.

We feel that this committee, when it has in its possession all the facts and complete information, will readily comprehend the national character of those things embraced within Congressman Shaw's bill and that you will give to this bill full consideration to the end that the objectives sought by the bill will be accomplished.

Mr. MICHAELSON. Is it not true that this bill has for its main objective flood control rather than navigation?

Mr. BOND. I think it takes in both.

Mr. MICHAELSON. I can see nothing in the bill that provides for the improvement of the river for navigation purposes.

Mr. BOND. It was brought out before you came here that all the coal and lumber received in that vicinity uses this river for navigation purposes, and that there is something more than 1,000,000 bushels of wheat transported on this river.

Mr. SHAW. Several millions.

Mr. BOND. And I assume that further figures will be placed before the committee as to what the traffic is. Under present conditions there is considerable traffic—so the gentlemen have stated—and the idea is to do away with these fills and still keep the river in such condition that the traffic may continue there. The method of doing that is to remove the two dams that the Government has now erected there and then to dredge the bed of the river so that you can get proper navigation through there and provide further for using a reservoir so as to take the crest of the water. It is a combination of commerce and of flood control. These gentlemen have naturally stressed the flood control because they have just gone through a very serious situation. However, there is a very decided problem of navigation.

Mr. MICHAELSON. Is there not a committee of the House that deals with flood control?

Mr. BOND. Yes.

Mr. MICHAELSON. Would they not be better able to give the right kind of consideration to this bill than the Committee on Rivers and Harbors?

Mr. BOND. That may be, but the Speaker has referred it to this committee, and apparently it is up to us to take action on it.

Mr. SHAW. I will say in reply to my colleague from Chicago that this Illinois River problem is one which has many angles. We are

taking care of the city of Chicago; we also have a flood-control proposition and the health proposition. Those are the reasons, as shown in my statement, the matter is all in this bill together, so that we can consider all together and get our bearings and go along the line of least resistance from now on.

Mr. MICHAELSON. This money which you ask to be appropriated is to come from where? Is it to come from the appropriation authorized by the Rivers and Harbors Committee, or from a special appropriation which you are asking?

Mr. SHAW. It is a special appropriation we are asking for. We want to study the proposition. I will say to Mr. Michaelson that we do not expect to cut off the supply of water for the city of Chicago. We would like to do it. We would like to serve notice on you to have your sewage-disposal plants completed in Chicago, giving you a reasonable time in which to do it; but it is impossible for you to make any sudden arrangement to take care of it otherwise, and therefore our position in the matter will be to go along with you, correcting all these features, and doing the least possible amount of damage to any particular interest in the project.

Mr. GOODELL. With regard to that Exhibit A, I will say that the profile represents the dams in Illinois River. I wish the committee would look at that and see how the fill has taken the place of the river above the dam.

Mr. MICHAELSON. I would suggest that there are agencies and departments of law and the government of Illinois which are interested in this matter and who would like to be heard, and to get the full consideration by the committee they should be given an opportunity to be heard.

Mr. SHAW. As author of the bill and one most desirous of improvement in the Illinois River, I will say I should be glad to have more hearings and to bring in all the data on this bill we can get, and, furthermore, to go out and bring in all the data we do not now have.

(Thereupon the committee adjourned.)

**END OF
TITLE**